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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ARMAND PIERRE BOHE, PATRICE CORTIAL, REGIS DEGOUGE, and JEAN-LUC HALLE

Appeal 2015-006411
Application 13/003,980
Technology Center 3600

Before LINDA E. HORNER, CHARLES N. GREENHUT, and BRENT M. DOUGAL, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Armand Pierre Bohe et al. (Appellants)[1] seek our review under 35 U.S.C. § 134 of the Examiner's decision, as set forth in the Final Action dated May 13, 2014, rejecting claims 10–19.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Appellants identify Siemens S.A.S. as the real party in interest. Appeal Br. 1, dated November 10, 2014 ("Appeal Br.").

[2] Claims 10–19 are all of the pending claims. Final Act. 1.

CLAIMED SUBJECT MATTER

Appellants' claimed subject matter relates to "a method and system for safe route control." Spec. 1, ll. 5–6. Claims 10 and 18 are independent. Claim 10 is illustrative of the subject matter on appeal and is reproduced below.

> 10. A method for safe control of a route travelled by a vehicle running on an approach area for a maneuvering area, the maneuvering area being preceded by a closing signal positioned on ground and adapted to instruct the vehicle to stop, which comprises the steps of:
>
> calculating a safety time delay via a control unit on the ground to guarantee that the vehicle stops before it crosses the maneuvering area for every approach of the vehicle on the approach area;
>
> setting the closing signal and in parallel with the setting of the closing signal, transmitting a request for information originating from the control unit on the ground to a safety control unit on-board the vehicle;
>
> assessing, via the safety control unit, a braking capacity of the vehicle on a basis of an energy balance related to kinetics of the vehicle and coded information required by the control unit on the ground is transmitted back to the control unit on the ground; and
>
> depending on a status of the information required relating to the energy balance, the control unit on the ground minimizes the safety time delay.

REJECTION

The Final Action includes a rejection of claims 10–19 under 35 U.S.C. § 103(a) as unpatentable over Clifton (EP 1 752 355 A2, published February

14, 2007), Elder (US 3,937,428, issued February 10, 1976), and Horst (US 20014/0129840 A1, published July 8, 2004).

ANALYSIS

Appellants present arguments in support of the patentability of independent claim 10, and rely on the same arguments in support of the patentability of independent claim 18. Appeal Br. 4–13 (arguing that "the arguments on behalf of claim 10 apply equally well to claim 18" because "claim 18 recites highly similar [language] to that of claim 10"). Appellants do not present separate arguments for the patentability of dependent claims 11–17 and 19. *Id.* at 13. We select claim 10 as representative, and claims 11–19 stand or fall with claim 10. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner finds that Clifton discloses the method for safe control of a route as recited in claim 10 including "the control unit on the ground minimizing or canceling, if the status ensures that the vehicle stops without crossing the maneuvering area, the safety time delay depending on a status of the information required relating to the braking capacity." Final Act. 2–3 (citing Clifton, paras. 34, 37, Fig. 1). The Examiner states that Clifton does not disclose, *inter alia*, "the safety time delay calculated for every approach of the vehicle on the approach area" and "does not explicitly disclose . . . requesting the braking capacity information from the vehicle in parallel with the setting of the closing signal." *Id.* at 3.

The Examiner finds Elder discloses that "when a previously locked route is cancelled, calculating a safety time delay to guarantee that the vehicle stops before it crosses the maneuvering area for every approach to a

cancelled route portion." Final Act. 3 (citing Elder, Abst., col. 3, ll. 7–22, col. 11, ll. 33–46). The Examiner states:

> It would have been obvious to modify Clifton et al. to calculate the safety time delay for every approach of the vehicle on the approach area, instead of just when communications are lost, thereby in each approach setting the closing signal in parallel with the request for information from the vehicle, for the advantage of establishing a default route release strategy while assessing the braking capacity of the vehicle, in case the braking capacity assessment malfunctions and calculates a longer than necessary delay.

Id. at 3–4.[3]

Appellants contend that "this appeal comes down to the interpretation of paragraphs 35–37 of Clifton." Appeal Br. 8 (emphasis omitted). Appellants state that in Clifton, if a signalman requests cancellation of a route in front of a train, it must be determined that a route can be released. *Id.* at 7. Appellants contend that "paragraphs 35 and 36 [of Clifton] teach the setting of a timeout timer due to a loss of communications in the system (e.g. loss of train to TPE [Trackside Processing Equipment] communications or between the interlocking and TPE)" and that "after the expiration of the timeout timer, the route can be released (e.g. without worry) and the route is

[3] The Examiner further determined it would have been obvious "to have a physical, in-ground signal" and "to utilize a closing signal positioned on the ground" in Clifton, and it would have been obvious to modify Clifton "to assess the braking capacity of the vehicle based on an energy balance relating to kinetics of the vehicle." Final Act. 4. Appellants did not challenge these proposed modifications and determinations. Appeal Br., *passim*. Appellants also do not challenge the Examiner's findings as to the scope and content of Horst or the proposed modification of Clifton with the teachings of Horst. *Id.* at 4–6; Appeal Br. 12.

safely available for use by another train." *Id.* at 8 (emphasis omitted). Appellants contend "[p]aragraph 37 of Clifton teaches that if the train indicates that it can stop safely in the rear of the route, the route can be immediately released." *Id.* at 8. In other words, Appellants assert that "in Clifton, there is no request to the train that is performed in parallel to the setting of the closing signal to route occupied. Rather[,] in Clifton the request is performed only later after communication is reestablished." *Id.* at 9.

For the reasons that follow, we disagree with Appellants' understanding of Clifton. In particular, we do not understand Clifton to disclose that the request to the train is performed only after communication is reestablished. Clifton discloses that "[i]f the signalman requests the cancellation of a route in front of a train, this will cause any lineside signal to be replaced." Clifton, para. 33. Clifton further discloses that the TPE may release TPE Approach Locking: (a) "immediately if no movement authority into the cancelled route has yet been issued to the train;" (b) "once a shorter authority to the start location of the cancelled route has been issued to the train and the train either stops or confirms that it is able to stop in rear of that location;" and (c) "after a short time delay if the train reports that it has entered the route." *Id.* at para. 34. The relevant scenario to our inquiry is scenario (b). Appeal Br. 8 (addressing scenario (b)); Ans. 3 (Examiner agreeing with Appellants that scenario (b) is "critical to the rejection").

Scenario (b) requires communication between the train and the TPE, i.e., communication from the TPE to the train of a new shortened movement authority, and response from the train to indicate if the train has stopped or is

able to stop behind the start location of the cancelled route. Clifton discloses that "if a train indicates that it can stop safely in rear of a new shortened movement authority then the TPE can remove its own TPE Approach Locking." Clifton, para. 37. "This removal of TPE Approach Locking can be utilized within the interlocking logic to override its own approach locking for a fitted train and release the cancelled route far sooner than would be possible with conventional logic, thus providing a significant performance improvement." *Id.* Clifton further discloses, however, that "to allow for possible loss of communication with the train, the TPE can also release its approach locking after the timeout of a timer, [where t]he length of this timer ensures that the train will have timed out its own movement authority and the train has come to a stand." *Id.* at para. 35; *see also id.* at para. 36 (describing use of a timer if communication between the interlocking and the TPE is lost).

Based on these disclosures, we understand Clifton to describe a system in which, if at the time cancellation of the route is requested, the train indicates that it can stop safely in rear of a new shortened movement authority, then the TPE can remove its own Approach Locking immediately, and thus, after less of a delay than would have been employed using the conventional logic resident in the Signalling Interlocking. We understand Clifton to employ a timeout period only in the event that communication with the train is lost, e.g., in the event that the TPE is unable to send the new shortened movement authority to the train and/or the train fails to respond with an indication either that it has stopped or can safely stop in rear of the new shortened movement authority. Thus, we do not understand Clifton to

disclose a system in which a timeout timer is set due to loss of communication, and subsequently, only upon reestablishment of communication between the TPE and the train, the time period of the timer is possibly shortened. Rather, in Clifton, under scenario (b), if the TPE and train are able to communicate and the train indicates that it is able to stop in rear of the shortened movement authority, then the TPE will release the cancelled route immediately, and thus, far sooner than would be possible with the conventional logic of the Signalling Interlock. As such, we understand that Clifton's system will set a closing signal ("cause any lineside signal to be replaced") upon a request to cancel a route, and will also issue a request to the train for braking information at the same time. *See* Ans. 4. Although the exact timing of the request to the train is not explicitly disclosed in Clifton, we agree with the Examiner that, for the reasons provided in the Examiner's rejection, issuing the request to the train for braking information in parallel to the setting of the closing signal would have been obvious to one having ordinary skill in the art at the time of Appellants' invention in light of the teaching in Clifton that using the train's braking information to release a route sooner provides significant performance improvement.

Appellants argue that the Examiner's reliance on Elder is misplaced because "[t]here are no teachings in Elder for minimizing the safety time delay." Appeal Br. 10 (Appellants stating that "Elder does teach that a time delay is enforced after a route cancellation request is requested" but that Elder's time delay is "preset, (not calculated)") (citing Elder, Abst., col. 3, ll. 7–22). The Examiner, however, did not rely on Elder to teach minimizing

a safety time delay. Rather, the Examiner relied on Elder to teach "calculating a safety time delay to guarantee that the vehicle stops before it crosses the maneuvering area *for every approach to a cancelled route*." Final Act. 3 (emphasis added); *see also* Ans. 5. The Examiner relies on Clifton to teach minimizing a safety time delay. Final Act. 2–3; Ans. 5.

Further, we agree with the Examiner's understanding that Elder discloses "calculating" a time delay. Ans. 5. In particular, Elder describes that a time delay is enforced after the cancellation request before a new route conflicting in any portion can be established. Elder, col. 3, ll. 19–22. Elder teaches that when establishing a route for a train to move through the interlocking, the apparatus "check[s] that no cancellation is in progress." Elder, col. 11, l. 55 – col. 12, l. 7. Elder discloses that when a route is cancelled and a proceed signal is taken away, the apparatus employs a time delay period before resetting the approach lock relays. *Id.* at col. 11, ll. 4–7. Elder discloses that "[t]he delay period is normally preset and adjusted in accordance with the requirements of the particular arrangement in which used." *Id.* at col. 11, ll. 12–15. "[T]he time delay provided by relay TE1 will be selected to allow an approaching train to stop short of signal 6G when this signal is taken away and the route cancelled, or to allow the train to overrun the signal, if insufficient space remains for the train to stop, and occupy section 7T without any danger to any conflicting movements." *Id.* at col. 11, ll. 33–39. Thus, for every approach of the vehicle on the approach area, Elder describes employing a "preset" delay period that is "adjusted in accordance with the requirements of the particular arrangement," thereby calculating a safety time delay.

Appellants further argue that even if the features of Clifton and Elder are combined, "there still is nothing that teaches the desirability of shortening the time delay or finding a way to shorten the time delay." Appeal Br. 10 (emphasis omitted). Appellants' argument is not commensurate with the scope of claim 10. As noted by the Examiner, the claim does not require first setting an initial safety time delay, and a subsequently "shortening" the initial safety time delay. Rather, claim 10 recites three steps of "calculating," "setting" and "assessing" in no stated order. Claim 10 further recites "depending on a status of the information required relating to the energy balance, the control unit on the ground minimizes the safety time delay." Appeal Br. 14 (Claims App.). We understand the scope of claim 10, as written, to be broad enough to encompass the "calculating" step occurring after the "setting" and "assessing" steps, such that if the "calculating" step takes into account the status of the information required relating to the energy balance, and thus, calculates the shortest possible time delay, which includes no delay at all, the system meets the requirement that "the control unit on the ground minimizes the safety time delay." In other words, the claim term "minimizes" does not necessarily require a shortening of an initial safety time delay. *See* Ans. 3 ("under a broadest reasonable interpretation, independent claim 10 does not require 'shortening' a safety time delay" and "[t]he use of 'minimize' in reference to the safety time delay only requires a single safety time delay calculation that is kept to the smallest quantity possible").

This interpretation is consistent with Appellants' Specification, which describes that even if the train has the ability to stop, the control unit may not authorize the reduction of the safety time delay:

> If the train A has the ability to stop on the approach area ZA without crossing the manoeuvring area ZM, the safety computer responds positively to the control unit on the ground USOL by sending the required information IR, in other words for example, a binary 0-1 type message which may be accompanied by its operating domain and authorising *or not* the reduction or even cancellation of the safety time delay TS.

Spec. 7, ll. 27–33 (emphasis added). Thus, Appellants' Specification describes that the initial time delay may, in fact, be the shortest time delay and no reduction of the initial safety time delay is authorized. The Specification also describes that the initial time delay may not be used at all if the system determines that cancellation of the safety time delay is appropriate.[4]

Even were Appellants' interpretation of claim 10 employed, as explained by the Examiner, the combination of Clifton and Elder would result in the claimed method:

> The difference between Clifton and Appellant[s'] narrow interpretation of claim 10 . . . is that Clifton does not calculate the initial time delay in every approach instance before assessing whether a verified braking capacity renders a time delay unnecessary.

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[4] Notably, much like the system described in Clifton, Appellants' Specification further describes that in a scenario in which "the train A responds 'negatively' to the request *or does not respond at all* . . . the route destruction device D waits for the end of the safety time delay TS (maximum by default) to physically destroy the route." *Id.* at 8, ll. 18–25.

> . . .
>
> Examiner precisely relies on Elder for establishing a default, preset, time delay in all instances, which is an element of the narrow interpretation of the claimed invention. When this teaching of Elder is used to modify Clifton, which discloses the braking capacity assessment, the combination teaches an initial safety time delay that is subject to a braking capacity assessment.

Final Act. 4–5.

Appellants further contend that the Examiner employed hindsight in reaching a determination of obviousness based on Clifton and Elder. Appeal Br. 10–11. This argument, again, relies on a misperception that claim 10 requires "shortening" of a time delay. *Id.* at 11. For the reasons discussed *supra*, this argument is not commensurate with the scope of claim 10 as written. Further, we agree with the Examiner's reasoning that even under Appellant's narrower interpretation, the claimed subject matter would have been obvious in view of Clifton and Elder:

> [T]here is very little practical difference between the function of the claimed invention and the un-modified Clifton. . . . The claimed invention is thus determining a default time delay, but not using it whenever a braking capacity is communicated from the train. This is the same as Clifton. Clifton uses a time delay based on the braking capacity of the train whenever it is communicated, and has a default time delay when the braking capacity cannot be communicated. . . . Consequently, in comparison to Clifton, the narrow interpretation of the claimed invention is really only adding a superfluous step in which a default time delay is determined, but not used, when the braking capacity is available. Examiner maintains that the combination is not the product of hindsight because it is simply making explicit a superfluous element of Clifton that does not affect the function of the invention.

Ans. 5–6.

Appellants lastly contend, for the first time in the Reply Brief, that Elder teaches "a time delay is enforced after **a route cancellation request is received**" and not "on the approach of every train." Reply Br. 5 (arguing Elder "is not the case where an approaching train is requesting to lock the route").[5] Elder, like Appellants' Specification, is directed to determining when a route can be released after receipt of a route cancellation request. Elder, col. 3, ll. 7–22, col. 11, ll. 4–54; Spec. 1, ll. 24–25 (directed to "a safe control logic for emergency destruction of a route") and *id.* at 3, ll. 6–27 (describing that the safety time delay in the prior art guarantees that a train approaching the closing signal will be stopped after the time delay has elapsed, and will take into account the longest stopping time of the different types of trains running in this area at the maximum authorized speed). Claim 10, which is directed to "[a] method of safe control of a route travelled by a vehicle running on an approach area for a maneuvering area, the maneuvering area being preceded by a closing signal positioned on ground and adapted to instruct the vehicle to stop," is likewise directed to the use of a time delay after a route cancellation request is received. Appeal Br. 14 (Claims App.). The method calls for "calculating a safety time delay via a control unit on the ground to guarantee that *the vehicle* stops before it

[5] This new argument raised in the Reply Brief is not responsive to an argument raised in the Examiner's Answer, and is, thus, untimely. *See* 37 C.F.R. § 41.41(b)(2) ("Any argument raised in the reply brief which was not raised in the appeal brief, or is not responsive to an argument raised in the examiner's answer, . . . will not be considered by the Board for purposes of the present appeal, unless good cause is shown.") We, nonetheless, address the argument for sake of completeness.

crosses the maneuvering area for every approach of *the vehicle* on the approach area." *Id.* (emphasis added). We understand "the vehicle" in claim 10 to refer to the vehicle instructed to stop as recited in the preamble. As such, we understand claim 10 to require the calculating step to occur for every approach of a vehicle that has been instructed to stop, i.e., due to cancellation of a route. Appellants have not pointed to support in their Specification for an interpretation of claim 10 to require the calculating step to occur for every approaching train that is requesting to lock the route. Thus, Elder discloses calculating a default safety time delay after a train has been instructed to stop before release of a route for every approach of a train that has been instructed to stop.

For these reasons, we agree with the Examiner's findings as to the scope and content of the prior art and the Examiner's reasons that would have led one having ordinary skill in the art to combine the prior art in the manner claimed. Appellants have not demonstrated error in the Examiner's rejection of claim 10, or claims 11–19 which fall with claim 10.

DECISION

The decision of the Examiner to reject claims 10–19 under 35 U.S.C. § 103(a) as unpatentable over Clifton, Elder, and Horst is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED